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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/147,398	04/02/1999	WITTICH KAULE	JEK-KAULE	1669

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EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 01/22/2002

19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/147,398

Applicant(s)

KAULE ET AL.

Examiner

Erica E Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2001 and 15 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 20-22, 24, 25, 28-33 and 36-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-22, 24, 25, 28-33 and 36-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 02 October 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Faxing of Responses to Office Actions

1. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302 or, for responses after final rejection only, to (703) 872-9303. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the engraved "residual area base" present on a depression flank, set forth in claim 25, must be shown or the feature(s) canceled from the claim(s). Note that the now-claimed "residual area base" (as described on page 6, lines 3-13) is different from the "substructures" shown in Figure 10 and described on page 9, lines 14-27 of the specification as originally filed. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The previously amended paragraphs, namely the paragraph from page 5, line 21 to page 6, line 2, as well as the paragraph containing lines 24 and 25 on page 3, could not be amended as

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set forth in the amendment filed October 2, 2001 because the amendment did not contain the clean and marked-up copies of these paragraphs in accordance with CFR 1.121, as was asserted on page 2 of this amendment. Accordingly, the specification is objected to as it contains references to a Figure (14) that has been canceled, and additionally contains the reference to a “meander-shaped substrate”, described in the advisory action mailed July 19, 2001 as new matter.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 25 and 29-31 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The engraved “residual area base” present on a depression flank, set forth in claim 25, (as described on page 6, lines 3-13) is different from the “substructures” shown in Figure 10 and described on page 9, lines 14-27 of the specification as originally filed. Thus, the specification as originally filed only provides for engraved “residual area base” in the bottom of the depression, and provides for the “substructures” described on page 9, lines 14-27 of the specification as originally filed, to be provided on the depression flank, but does not provide an engraved “residual area base” on a depression flank. Additionally, in claim 29, note that the specification does not set forth that the what is now referred to as the “residual area base” is incorporated “in the form of characters, pictures, or patterns, but instead

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appears to teach that the previously engraved substructure lines 30 (page 9) can incorporate such. Regarding claim 30, note that the specification teaches that “machine-readable information” can be “brought in” via “varying a line depth, line width, line density or contour” (page 9, lines 9-13), but does not provide that a “residual area base” represents “machine-readable information” as claimed. Regarding claim 31, as described in the specification on pages 5 and 6 and shown in, for example, Figures 5 and 11, the residual area base is provided as a protrusion and not a groove. Note that the substructure line 30 shown in Figure 10 as recessed and described on page 9 is not the same as the now-claimed “residual area base”. Examiner recommends actually labeling in the figures what is now being called “engraved residual area base”, e.g., in Figure 5c, point to one of the “engraved residual area base” structures and assign it a reference element number, and then be consistent throughout the specification and claims in the manner to which such is referred, particularly regarding page 9, lines 14-27.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-18, 20-22, 24-25, 28-33, and 36-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-18, 20-22, 24-25, 28-33, and 36-41 are replete with instances that do not particularly point out and distinctly claim the subject matter of applicant's invention. Examples of these instances are listed below, but these instances are not limited to the listed examples. Applicant is advised to closely review the claims for other occurrences.

In claim 1, it is unclear as claimed what is meant by "determining a tool track", i.e., it is unclear what feature or aspect of the track is being "determined".

There are several positively recited limitations that lack sufficient antecedent bases in the claims. Examples of this are: "the desired contour", "the depression", and "the engraving tool", all in claim 1. Note that this list is not meant to be all-inclusive. Applicant is advised to closely review the claims for other similar occurrences.

In claim 3, it is unclear what is meant by "intersection-free" as set forth in the claim. Note that the contours shown in applicant's figures have more than one side.

The term "several" in claim 20 is a relative term which renders the claim indefinite. The term "several" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Examiner suggests using "plural" or "multiple" instead.

Regarding the terminology "residual area base", it appears that applicant may be intending to use this terminology to describe the roughness structures that are left between offset tool tracks. If so, Examiner recommends utilizing the "roughness structure" language or language similar thereto as the term "residual area base" is misleading. It would seem to indicate the underside or "base" of the unengraved residual area portion 16 (see Figure 4) as once an area is engraved, it is no longer "residual".

In new claim 41, the preamble of the claim sets forth a "plate". However, the body of the claim sets forth an "engraving tool", which does not further limit the "plate". It is therefore unclear whether claim 41 is drawn to the subcombination of a "plate" or to the combination of a "plate" and "tool" as implied by the recitation of the tool within the body of the claim. For

purposes of the analysis of claim 41 with respect to the prior art, it is noted that if the intention was to set forth the structure of the "plate" based on a dimension of the tool (not the same thing as claiming the combination of the plate and tool), that this claim would be a product-by-process claim, and that the claim is thus being treated as a product-by-process claim with respect to the prior art.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by using a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Also see MPEP § 2113.

In claim 41, it is unclear what aspect or feature of the "at least one engraved depression" is being "calculated".

Claim Rejections - 35 USC § 102/103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 24-25, 28-33, and 41, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 2,210,923 (Jacquerod et al) or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 2,210,923 (Jacquerod et al.) in view of U.S. Patent No. 4,972,323 (Cauwet). The limitation in claim 24 that states “a residual area base engraved into said depression”, and the limitations in claims 32 and 33 that also define how the substructure is “brought in”, and the limitation in claim 41 described in the above 112, 2nd paragraph rejection thereof make it appear that the claims 24-25, 28-33, and 41 are product-by-process claims. As described above, for a product-by-process claim, determination of patentability is based on the product itself and not its method of production.

Jacquerod et al. teaches an intaglio printing plate 10 (page 2, left column, lines 38-42 and Figure 1) which has a depression 11 in the shape of a “one” which constitutes a line, which depression is shown in Figures 1-3 as having flanks and a bottom. Jacquerod et al. also teaches that the printing plate 10 has a “residual area base” ^{defined roughness structure} formed by the stipled formation 11a at least in the bottom of the depression, where the width of each of the stiples of the formation 11a is smaller than the depression 11 width (see Figures 1-3). The stipled formation 11a defines a roughness, as shown in Figure 2. Specifically regarding claim 29, the layout of the stiples 11a is considered to be a “pattern”. Specifically regarding claim 30, the stiples 11a are “machine-readable” in that they are “able” to be “read” by a machine such as a camera or a scanner. Specifically regarding claim 31, as each of the stiples shown in Figures 1-3 is recessed, they are considered to be grooves. Regarding claim 24, particularly note that along the edges of the “line” 11’, there are stiples shown in Figure 3 as being connected to one another along a

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direction parallel to the flanks of the "line" 11'. Regarding the way that the lines and the substructure were brought in, Jacquered teaches that it is known to use "mechanical" cross hatching (page 1, left column, lines 10-24) to bring in a substructure, which inherently includes the use of a "mechanical chisel". Specifically regarding claim 41, it is noted that the line itself, 11, 11', is produced via an "incision" (page 2, left col., lines 39-40 for example), and thus is produced via an "engraving tool", which tool would inherently have a width, which width would inherently have to be considered in order to produce a desired depression shape such as the number one shown in Figure 1. Without considering the tool width, a depression would be produced that may or may not be the size desired.

In the alternative, Cauwet teaches that it is known to use a "milling cutter, engraving chisel, laser emitter, electro-erosion tool, etc." (column 2, lines 50-55) in an automatic engraver (column 1, lines 14-18) such that the tool chosen is suitable to the material being engraved (column 1, lines 14-18 and column 2, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have created the lines and stiples taught by Jacquered et al. via engraving with a laser or a mechanical chisel, as taught by Cauwet, as these are known methods of material removal/engraving and as such are a design choice of the end user. *badly worded*

11. Claims 24-25, 28-33, and 41, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent Re. 28,747 (Graboyes), or in the alternative, claims 24-25, 28-31, and 41 are rejected under 35 U.S.C. 103(a) as being obvious over Graboyes and claims 32-33 are rejected under 35 USC 103(a) as being obvious over Graboyes in view of U.S. Patent No. 4,972,323 (Cauwet). The limitation in claim 24 that states "a residual area base engraved into

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said depression”, and the limitations in claim 32 and 33 that also defines how the “residual area base” is “brought in”, and the limitation in claim 41 described in the above 112, 2nd paragraph rejection thereof make it appear that the claims 24-25, 28-33, and 41 are product-by-process claims. As described above, for a product-by-process claim, determination of patentability is based on the product itself and not its method of production.

Graboyes teaches a printing wheel 30 having platforms or plate portions 80 (Figures 3-4). Note that as shown in Figure 7, the removed area from the center of the land area 116 (of the “four”) is a depression. In as much as applicant’s described and shown depressions are “lines”, the depression constitutes a “line”. The depression area is machined out via rotating cutting tools (col. 3, lines 33-35) that follow a series of paths (see Figures 8-23) which extend “at least in partial areas parallel” to a direction of the depression. The depression has flanks 121 (shown in Figure 9) and a bottom (labeled in Figure 9 as element 112, for example). Note that as viewed in Figures 8-23, the tool tracks have “residual area bases” therebetween. Note that these residual area bases inherently define a “roughness” as set forth in claim 28, and that they form a “pattern”, for example, as set forth in claim 29. Note that these residual area bases are inherently “machine-readable information” as they are “able” to be read by a machine such as a camera or scanner. Regarding claim 31, alternatively note that one of the tool tracks, i.e., a groove, would constitute a “residual area base” as these tool tracks are located at the base of material removed from the inner area of the depression (see Figures 8-23). Specifically regarding claim 41, it is noted that cutting tools 32 and 34 of differing diameters or “widths” are used to produce a desired engraved pattern (col. 6, lines 12-33, for example). Regarding claim 33, note that the rotating engraving tool constitutes a “mechanical chisel”. Regarding the preamble of these

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rejected claims which sets forth an “embossing or intaglio printing plate”, note that the other limitations of the claim are met by Graboyes as described above, and that there is no reason why the depression portion of the plate 80 of Graboyes printing wheel 30 could not be filled with ink and thus used as an intaglio plate.

Alternatively, regarding the “embossing or intaglio printing plate”, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have reversed the recessed and protruding portions of the plate such that the land 116 shown in Figure 7 were recessed into the surface 112, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein, 8 USPQ 167.

Regarding claims 32-33, in the alternative, Cauwet teaches that it is known to use a “milling cutter, engraving chisel, laser emitter, electro-erosion tool, etc.” (column 2, lines 50-55) in an automatic engraver (column 1, lines 14-18) such that the tool chosen is suitable to the material being engraved (column 1, lines 14-18 and column 2, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have to have created the “residual area base” (or bases) taught by Graboyes via engraving with a laser or a mechanical chisel, as taught by Cauwet, as these are known methods of material removal/engraving, and as such, the selection of one over the other is a design choice of the end user based on criterion such as the material being engraved as taught by Cauwet.

12. Claims 1-10, 12-14, 16-18, 21-22, and 37-40, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Re. 28,747 (Graboyes), or in the alternative, are rejected under 35 U.S.C. 103(a) as being obvious over Graboyes.

Relating Applicant's claim language to the method taught by Graboyes, Graboyes teaches a method for producing an embossing plate 80 (Figure 4) having a surface 116 with at least one depression (portion 85, see Figures 4 and 7, the area enclosed by the land 116) in the form of a line (in as much as applicant's described and shown depressions are "lines", the depression constitutes a "line") brought into the surface of the embossing plate, characterized in that the line defines a limited partial area of the surface, an edge of the partial area defining a contour (i.e., the edge of the aforescribed depression), wherein the method comprises the step of determining a tool track (several tool tracks are "determined", see Figures 8-24) located within the contour from the desired contour and from a predetermined desired depth of the depression (col. 10, lines 3-6, for example), the engraving tool 32, 34 being controlled along said track such that a material of said partial area is removed within the contour at the predetermined desired depth, said track being continuous along the contour of the area (Figures 8-24). Regarding claim 2, note that the desired contour is the contour of the area enclosed by the land 116 (Figure 4) and that the tool paths offset inwardly from this contour, so that each tool path has at least a portion that "extends contour-parallel to the desired contour" (Figures 8-24). Regarding claim 3, note that the corners of the area enclosed by the land 116 shown in Figure 7 are rounded and thus the contour is a continuous line. Regarding claim 4, note that the claim does not state that the actual depth varies, but merely sets forth that the desired depth is variable or "able" to be varied. Graboyes teaches a three-axis machining device that is capable of axially moving the tool (col. 3, lines 50-55). Regarding claim 5, note that each tool track is at a depth constant within that tool track (see Figures 8-24). Regarding claim 6, note that the material within the contour removed from the outermost track (for example) is removed by a "single" traverse. Regarding claims 7-8,

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any of the area within the desired area and not removed with the first track is “residual area”, and that there are plural offset tracks (Figures 8-24). Regarding claim 9, note that applicant, in the response filed November 15, 2001, set forth that a meander is “a winding path or course”, and that any of the tool tracks taught by Graboyes thus constitute a “meander-shape” as they “wind” or turn in multiple directions (see Figures 7-24). Regarding claim 10, see Figures 12 and 13 for example. Regarding claim 12, note that the tool paths get progressively deeper (see Figures 13, 15, 17, 19, 21, 23, and 24). Regarding claim 13, note that after plural “engraving steps”, a recognizable pattern is formed (Figure 7, col. 11, lines 36-41). Regarding claim 14, note that Graboyes teaches a console 36 that houses the numerical control program for the machine tool device 20 (col. 3, lines 30-50). The rotating engraving tools 32, 34 taught by Graboyes constitute “mechanical chisels” as set forth in claims 16-17. Regarding claim 18, note that tools 32 and 34 are different diameters (col. 5, lines 8-10). Regarding claim 37, Graboyes teaches that the “width” of the tool is “taken into account” before forming the desired contour (col. 10, lines 49-64, for example). Regarding claim 38, note that Graboyes teaches selecting a desired spacing of the steps, which would thus inherently produce a desired “roughness structure” (col. 10, lines 6-10). Regarding claim 39, see Figures 12-13, for example. Regarding the “embossing plate”, there is no reason that the depression of plate 80 of Graboyes printing wheel 30 could not be filled with ink and thus used as an embossing plate. Regarding claim 22, note that in the further machining steps, i.e., the further tool tracks, that the tool cuts the flank 121 (Figure 24 for example).

Alternatively, regarding the “embossing plate”, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have reversed the recessed and

protruding portions of the plate such that the land 116 shown in Figure 7 were recessed into the surface 112, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. In re Einstein, 8 USPQ 167.

Regarding claims 16-17, in the alternative, Cauwet teaches that it is known to use a “milling cutter, engraving chisel, laser emitter, electro-erosion tool, etc.” (column 2, lines 50-55) in an automatic engraver (column 1, lines 14-18) such that the tool chosen is suitable to the material being engraved (column 1, lines 14-18 and column 2, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have to have engraved as taught by Graboyes with a mechanical chisel, as taught by Cauwet, as these are known methods of material removal/engraving, and as such, the selection of one over the other is a design choice of the end user based on criterion such as the material being engraved as taught by Cauwet.

Claim Rejections - 35 USC § 103

13. Claim 15, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Re. 28,747 (Graboyes) as applied to claim 1 above, and further in view of U.S. Patent No. 4,972,323 (Cauwet). Graboyes teaches all aspects of the claimed invention as described in the above rejection based thereon, but does not teach that the engraving tool is a laser. However, Cauwet teaches that it is known to use a “milling cutter, engraving chisel, laser emitter, electro-erosion tool, etc.” (column 2, lines 50-55) in an automatic engraver (column 1, lines 14-18) such that the tool chosen is suitable to the material being engraved (column 1, lines 14-18 and column 2, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have to have engraved as taught by

Graboyes with a laser, as taught by Cauwet, as these are known methods of material removal/engraving, and as such, the selection of one over the other is a design choice of the end user based on criterion such as the material being engraved as taught by Cauwet.

14. Claims 20 and 36, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Re. 28,747 (Graboyes). Graboyes teaches all aspects of the claimed invention as described in the above rejection based thereon, and additionally teaches that Graboyes' device 20 utilizes eight pairs of cutting tools for working on eight different workpieces simultaneously (col. 11, lines 13-18), but is silent as to the material of the workpiece and does not specify that a single workpiece is operated on simultaneously by "several" engraving tools. However, regarding the material of the workpiece, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the workpiece out of whatever material was desired or expedient, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331. Regarding the "several" tools, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized "several" tools, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

15. Claims 1-3, 5-11, 14, 16-18, 20, 36, and 37, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,949,270 (Shima et al.). Shima et al. teaches a device for and method of machining a pocket of a desired contour into a surface

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(column 1, lines 58-68, and column 2, lines 1-4), which constitutes a similar problem solving area to the instant invention. Shima teaches performing such machining at a predetermined depth of cut (column 1, lines 13-15). Shima teaches the use of a tool path 4 that is "intersection-free" as well as at least partially "contour-parallel" to the desired contour 1 (see Figure 16), and which tool path only requires one traverse of the tool (see Figure 16). Shima also teaches that it is known to use a tool path that removes residual area with a second tool track (Figure 13c) which removes material in tracks which are "contour-parallel" to the desired contour (Figure 13c). Alternatively, any time the tool "turns", it could be said to create a new tool path (i.e., the second tool track as claimed in claim 7). For example, in Figure 13b, the tool path starts at the top going from right to left, which could constitute a first track, and then it proceeds to turn and move from top to bottom, which could constitute a second tool track. Shima also teaches that it is known to use a "meander" shaped tool path (see Figure 13b). Specifically regarding claims 10 and 11, when material is removed, a new surface having a roughness will be formed, and when the material is removed via a tool having any of the paths taught by Shima, the new surface will have grooves of one size or another. Specifically regarding claim 14, the desired contour is defined with the aid of a data processing system (column 2, lines 30-46). Specifically regarding claim 18, tools of different kinds or dimensions can be used, or it would not be necessary to define the tool shape and diameter as described in column 3, lines 49-52. Note that as the tool diameter is being defined, the tool "width" is being "taken into account". Shima et al. does not specifically teach that the method of cutting is used for an embossing plate, nor that several workpieces are machined simultaneously, nor that one workpiece is machined with several tools simultaneously, nor that the machining is performed with a rotating tool. However, the

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machining method taught by Shima et al. can be used to machine a pocket of a desired contour into any workpiece having an accessible surface. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the method of the present invention to machine a desired contour into a printing plate, since a printing plate is a workpiece with an accessible surface. Regarding the multiple workpieces or multiple tools, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized multiple workpieces or multiple tools, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Regarding the rotating tool, pocket machining or “end face finishing” (column 3, lines 25-30) requires a rotating tool in order to produce the quality of finish that characterizes a “finishing” operation.

16. Claims 4, 12, 13, 15, and 39, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,949,270 (Shima et al.) as applied to claim 1 above, and further in view of U.S. Patent No. 4,972,323 (Cauwet). Shima et al. teaches the aspects of the claimed invention as set forth in the above rejection based thereon. Regarding claim 13, Shima additionally teaches the cutting of “humanly recognizable” shapes or images (see Figure 16, for example). However, Shima et al. does not teach varying the depth of cut, nor using a laser engraving tool, and regarding claim 39, is silent as to how many pockets are being machined in a particular workpiece. Cauwet teaches the use of an engraving tool having three axes of movement (column 1, lines 22-25) to vary the depth of cut (column 14, lines 3-17) and to set multiple tooling passes (“one or more further engraving steps” as claimed in claim 12) (see column 14, lines 34-36) in a flat plate workpiece (column 2, lines 5-6). Cauwet also teaches that

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the engraving tool can be a milling cutter or laser, with the specific type of engraving tool used being dependent on the material of workpiece used (column 2, lines 50-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have varied the depth of cut, as taught by Cauwet, in the cutting process taught by Shima et al. for the purpose of being able to engrave images of a higher complexity (Cauwet, column 2, lines 15-20) into the flat workpiece taught by Shima et al. It would also have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a laser engraving tool, as taught by Cauwet, to engrave a workpiece with the engraving method taught by Shima et al, for the purpose of being able to engrave workpieces made of materials that are not suitable for engraving with a rotary engraver (Cauwet, column 2, lines 50-55). Regarding the number of pockets or contours that are machined, such would be an obvious design choice of the end user, i.e., it is within the level of ordinary skill to determine how many and at what depth of pockets are produced, particularly since it is notoriously well-known in the art of printing to vary the depth of such pockets for the purpose of shading different portions of an image produced thereby in different ways.

17. Claims 21 and 22, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,949,270 (Shima et al.) as applied to claims 1 and 12 above, and further in view of U.S. Patent No. 4,972,323 (Cauwet) as applied to claims 1 and 12 above, and further in view of U.S. Patent No. 2,210,923 (Jacquerod et al.). Shima et al. in view of Cauwet teaches all aspects of the invention as claimed in claims 21 and 22 as set forth in the above rejection of claim 12 based thereon, but does not teach different precisions of engraving tools. Jacquerod et al. teaches an flat intaglio printing plate that has a large removed area 11 in a

surface of the plate 10 in a desired shape contour. Jacquerod also teaches finer removed areas 11a, which as shown in Figure 3, appear to be on sloping flanks of the desired contour. At the time that Jacquerod's invention was made (patented 1940), the available technology to engrave the finer removed areas 11a was not practical (page 1, left column, lines 9-24). However, with the technology set forth in Shima et al. in view of Cauwet, the technology to engrave these finer areas with a smaller tool than was used to engrave the larger contour was practical at the time the present invention was made. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the intaglio printing plate with removed areas of differing precision taught by Jacquerod et al. for the flat workpiece taught by Shima et al. in view of Cauwet, and thus to have used the cutting methods and tools taught by Shima et al. in view of Cauwet to machine the areas of differing precision in order to be able to quickly and precisely remove the desired area from the intaglio printing plate.

Response to Arguments

18. Applicant's arguments filed October 2, 2001 and November 15, 2001 have been fully considered but they are not persuasive. Many of Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection, and accordingly, applicant's attention is directed to the above rejections. However, Examiner will address those arguments which still pertain.

19. Regarding Applicant's assertion that U.S. Patent No. 2,210,923 (Jacquerod) or Jacquerod in view of U.S. Patent No. 4,972,323 (Cauwet) do not teach an "engraved" residual area base, firstly, it is noted that the claims rejected with these references are product by process claims, which claimed product is taught by the Jacquerod patent, the method of forming the

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substructures or dimples is irrelevant as the patentability of a product in such a claim does not depend on its method of production. (See the above explanation regarding product by process claims). Additionally, regarding applicant's assertion that Jacqueroed teaches "etching" rather than engraving, it is noted that as the etching removes the material from the plate, the etching is a form of "engraving" that would be encompassed by the current claim language.

20. Regarding Applicant's assertions that the Cauwet reference fails to teach engraving "meandering or partially straight residual area bases in a linearly engraved depression", it is noted that the Cauwet reference was not relied upon in the above rejection to teach this feature. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

21. Regarding Applicant's assertions that Jacqueroed does not teach that the residual area base has "specific, non-random, meandering or partially straight lines, i.e., depressions engraved in the form of a line," as recited in claim 24", firstly, it is noted that the claim language in claim 24 does not set forth the residual area base is formed from "lines" as asserted, and that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, note that as set forth in the claim, the "residual area base" is different from the "depression engraved in the form of a line", and that it appears that Applicant is arguing that they are the same. Furthermore, as set forth in the above rejection, note that along the edges (left and

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right edges as viewed in Figure 3) of the “line” 11’, there are stiples shown in Figure 3 as being connected to one another along a direction parallel to the flanks of the “line” 11’.

22. Regarding Applicant’s assertion that Jacqueros teaches against mechanically placing a pattern onto the residual area base using a machine, it is noted that what Jacqueros says, which Applicant quoted, is that “...*such mechanical treatment is very expensive. It requires the labor of a skilled engraver who is required to put in many hours of work to cross-hatch even a small area...*” Note that this is not the same as teaching away from mechanically placing the pattern using a machine, per se, but instead teaches against mechanical treatment utilizing a *skilled engraver* (emphasis added), and as numerically controlled machines were not around in 1940 when the Jacqueros invention was patented, a skilled engraver who is manually performing the described slow process of cross hatching. Cauwet teaches that it is desired to utilize an *automatic* (emphasis added) engraver so that special operator skill is not required (col. 1, lines 40-50 and col. 2, lines 14-20).

23. Applicant has again asserted that the depression in the shape of a “one” taught by Jacqueros is not “in the form of a line”. However, as viewed in Figure 1, it is noted that the “one” or depression 11 shown in Figure 1 extends in a generally linear direction, and has linear sides thereof.

24. Applicant has asserted that U.S. Patent No. 4,949,270 (Shima et al.) “does not include the limitations of claim 1. However, specifically relating Shima to the language contained in current claim 1, Shima teaches a method for machining a depression or pocket into a surface (title and Figure 16) with at least one depression (the area enclosed by profile 1 once machined as viewed in Figure 16) in the form of a line (in as much as applicant’s described and shown depressions

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are “lines”, the depression constitutes a “line”) brought into the surface, characterized in that the line defines a limited partial area of the surface (profile 1 defines a limited partial area of the surface, see Figure 16), an edge 1 of the partial area defining a contour, wherein the method comprises the step of determining a tool track 4 located within the contour 1 from the desired contour (inherently, the shape is a desired one to be produced) and from a predetermined desired depth of the depression (col. 1, lines 13-15), the engraving tool being controlled along said track 4 such that a material of said partial area is removed within the contour at the predetermined desired depth, said track being continuous along the contour of the area (see Figures 16 and col.

1). Applicant’s reasoning that the pocket taught by Shima is not equivalent to the claimed “depression” is unclear. Specifically regarding Applicant’s remarks at the top of page 6 of the response from Oct. 2, note that Applicant has admitted that “Shima teaches tool paths that are parallel to the desired contour (i.e. outline)”, which thus meets the limitation from claim 2 that “at least part of the tool track extends contour-parallel to the desired contour”.

25. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the area enclosed by the outer contour can be engraved automatically and without specifically determining coordinates for the tool path) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

26. Regarding applicant's assertion that “the ordinary artisan would not have thought to combine a printing or embossing plate engraving method of the type disclosed by Jacquerod with the workpiece forming method of Shima, and the decorative article engraving method of

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Cauwet", Applicant's attention is directed to the above rejections based on the combinations of these references which provides motivation for combining them in the described manner.

Applicant has not provided any reasoning as to why it would not have been obvious to combine these references in the manner set forth in the above rejections.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. No. 5,378,091 (Nakamura) teaches using differing tool paths utilizing a ball end mill with a desired spacing between the tool paths in order to produce a desired surface roughness. U.S. Pat. No. 5,460,757 teaches that etching is a form of engraving. U.S. Pat. No.'s 4,907,164, 5,602,748 (English equivalent to JP 7-230308), 5,526,272 and JP 8-309953, JP 2000-263374, JP 2000-263373, and JP 10-58282 teach tool paths similar to the present invention. U.S. Pat. No.'s 3,975,938, 6,077,002, and 4,945,487 teach defined roughness structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.


eec

January 17, 2002


A. L. WELLINGTON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.